

NMCP COVID-19 Literature Report #27: Tuesday, 07 July 2020

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Purpose: These reports are curated collections of current research, evidence reviews, and news regarding the COVID-19 pandemic; they are biweekly, planned for Tuesdays and Fridays. Please feel free to reach out with questions and suggestions for future topics.

All reports are available online at <https://nmcp.libguides.com/covidreport>. Access is private; you will need to use the direct link or bookmark the URL, along with the case-sensitive password "NMCPfinest".

Disclaimer: I am not a medical professional. This document is current as of the date noted above. While I make every effort to find and summarize available data, things are changing rapidly, with new research and potentially conflicting literature published daily.

Note: Due to the holiday, there was no report on Friday, 03 July.

Statistics

Global 11,653,442 confirmed cases and 538,933 deaths in 188 countries/regions

*United States**

top 5 states by cases (Virginia is ranked 15th)

	TOTAL US	NY	CA	FL	TX	NJ
Confirmed Cases	2,939,540	397,649	273,662	206,447	205,642	173,611
Tested	36,032,329	4,288,131	4,793,353	2,233,940	2,163,729	1,549,209
Recovered	NA	71,040	NA	NA	103,782	30,729
Deaths	130,312	32,219	6,460	3,778	2,677	15,229

*see census.gov for current US Population data; NA: not all data available

[JHU CSSE](#) as of 1100 EDT 07 July 2020

<i>Virginia</i>	Total	Chesapeake	Hampton	Newport News	Norfolk	Portsmouth	Suffolk	Virginia Beach
Cases	66,740	1,046	390	613	1,162	572	470	1,455
Hospitalized	6,512	154	41	45	116	75	63	124
Deaths	1,881	22	5	10	12	18	38	30

[VA DOH](#) as of 1100 EDT 07 July 2020

Navy statistics, previously provided via Navy Live blog, will no longer be included as they are only updated weekly: "Beginning Monday, June 22, this daily update will transition to a once-weekly update". See: <https://navylive.dodlive.mil/2020/03/15/u-s-navy-covid-19-updates/>

COVID-19 at Six Months

Taken from [JHCHS 02 July Situation Report](#):

"Six months ago, in late December 2019, reports emerged about 27 cases of unidentified pneumonia in Wuhan, China, potentially linked to a local market. At that time, very little was known about the disease, pathogen, or origin of the outbreak, and while we have learned much over the past 6 months, many mysteries remain....

In order to provide some context for the past 6 months, we have compiled a timeline of selected events since the onset of the pandemic:

December

31: Wuhan Municipal Health Commission publishes the initial report of unidentified pneumonia, potentially linked to a local market [\[source\]](#)

January

06: US CDC issues a Level 1 travel watch for Wuhan, China [\[source\]](#)

11: First reported COVID-19 death in China [\[source\]](#)

13: First COVID-19 case reported outside of China [\[source\]](#)

21: First COVID-19 case reported in the US [\[source\]](#)

23: China implements "lockdown" in Wuhan [\[source\]](#)

24: First imported COVID-19 cases reported in Europe (France) [\[source\]](#)

27: US CDC issues Level 3 travel warning for China, recommending against non-essential travel [\[source\]](#)

27: First documented SARS-CoV-2 transmission in Europe (Germany) [\[source\]](#)

29: First COVID-19 cases reported in Eastern Mediterranean Region (United Arab Emirates) [\[source\]](#)

30: WHO declares COVID-19 a Public Health Emergency of International Concern [\[source\]](#)

30: US CDC confirms first domestic transmission of SARS-CoV-2 [\[source\]](#)

31: US implements travel restrictions for Mainland China [\[source\]](#)

February

05: The Diamond Princess cruise ship is quarantined in Yokohama, Japan, due to an ongoing COVID-19 outbreak onboard that resulted in at least 712 confirmed cases, including 9 deaths [\[source\]](#)

25: First COVID-19 case reported in the African Region (Algeria; cases had been previously reported in Egypt, but Egypt is part of the Eastern Mediterranean Region) [[source](#)]

27: South Korea surpasses China as #1 globally in terms of daily COVID-19 incidence [[source](#)]

29: US implements travel restrictions for Iran [[source](#)]

March

04: Seattle and King County, Washington (US), advises high-risk individuals to avoid large gatherings [[source](#)]

08: Italy implements "lockdown" for affected areas of the Lombardy region in Northern Italy [[source](#)]

10: Italy expands "lockdown" measures to the entire country [[source](#)]

11: US implements travel restrictions for all of Europe [[source](#)]

11: WHO declares COVID-19 a pandemic [[source](#)]

13: US declares the COVID-19 epidemic to be a national emergency [[source](#)]

14: US implements travel restrictions for the UK and Ireland [[source](#)]

15: National "lockdown" goes into effect in Spain [[source](#)]

16: Six counties in the San Francisco Bay Area, California (US), issue the country's first shelter-in-place orders [[source](#)]

18: The WHO announces the SOLIDARITY Trial, a global collaboration to conduct clinical trials for prospective COVID-19 medical countermeasures [[source](#)]

19: California (US) issues the first statewide "stay at home" order [[source](#)]

23: The University of Oxford (UK) begins enrolling patients for the RECOVERY Trial, a nationwide clinical trial effort in the UK for COVID-19 MCMs [[source](#)]

24: National "lockdown" ordered in India [[source](#)]

24: The International Olympic Committee announces that the 2020 Olympic Games, scheduled to be hosted in Japan, are postponed [[source](#)]

27: US CDC expands travel restrictions to cover all other countries [[source](#)]

28: US CDC issues domestic travel advisory for New York, New Jersey, and Connecticut [[source](#)]

28: Italy surpasses China as #1 globally in terms of cumulative COVID-19 incidence [[source](#)]

29: US surpasses Italy as #1 globally in terms of cumulative COVID-19 incidence (and remains #1 today) [[source](#)]

April

04: 1 million global cases [[source](#)]

May

15: US government unveils Operation Warp Speed, a program to drive development and production of medical countermeasures against COVID-19 [[source](#)]

17: WHO reports more than 100,000 new cases in a single day [[source](#)]

23: 5 million global cases [[source](#)]

24: US implements travel restrictions for Brazil [[source](#)]

28: US surpasses 100,000 cumulative reported COVID-19 deaths [[source](#)]

29: New York (US) enters Phase 1 of recovery (NYC on June 8) [[source](#)]

June

08: New Zealand declares SARS-CoV-2 eliminated [[source](#)]

11: European Commission recommends that European countries remove internal border restrictions by June 15 to enable travel within the continent [[source](#)]

29: 10 million global cases [[source](#)]

30: 500,000 global deaths [[source](#)]

30: European Council announces that European countries would lift travel restrictions for 15 countries beginning July 1 [[source](#)]

...The COVID-19 pandemic is far from over, but we are gaining experience and tools on a daily basis to improve our ability to combat it. Scientists, health practitioners, and other experts continue to learn more about the disease and the virus that causes it. We have a long way to go and a lot of hard work ahead of us, but we can and will bring this pandemic under control. Each of us plays an important role, whether contributing directly to response operations as a frontline healthcare worker or public health official, ensuring the continuation of community services and infrastructure as an essential worker, developing and implementing policies as a researcher or elected official, or taking appropriate protective measures as part of your daily life.

Wear your mask, maintain physical distance, wash your hands, and stay home when you are sick. We are all in this together, even if we are 6 feet apart."

Selected Primary Literature

Recent—published in peer-reviewed journals within the last 7 days of report's date

[JAMA Health Forum](#): Guidelines for Family Presence Policies During the COVID-19 Pandemic (06 July 2020)

"The coalition established 8 critical guidelines to preserve family presence, briefly summarized here:

1. Assess and continually reassess whether there is a need for restrictions based on current factual evidence.
2. Minimize risk of physical presence by following appropriate infection control guidelines.
3. Communicate proactively so families do not appear at a facility unaware of restrictions.
4. Clearly state compassionate exceptions to restrictions.
5. Minimize isolation in cases where family is unable to be physically present.
6. Use a shared decision-making approach to communicate risks and benefits in cases where family can be physically present.
7. Enlist family as members of the care team who share in the responsibility for abiding by established safety protocols.
8. Enhance discharge education and follow-up to support successful transitions of care."

[Lancet](#): Prevalence of SARS-CoV-2 in Spain (ENE-COVID): a nationwide, population-based seroepidemiological study (06 July 2020)

"This is the first nationwide population-based study that presents seroprevalence estimates of antibodies against SARS-CoV-2 at national and regional levels, exploring the landscape of population immunity in Spain. With more than 61 000 participants, this study provides accurate prevalence figures according to sex, age—from babies to nonagenarians—and selected risk factors. Our findings confirm that at least a third of individuals who have developed antibodies against SARS-CoV-2 were asymptomatic. Additionally, our results indicate that children and adolescents have lower seroprevalence than adults and seroprevalence does not vary by sex. Our study confirms that a high-quality point-of-care test could be a good choice for large seroepidemiological studies. The rapid test used here showed good performance compared with a chemiluminescent microparticle immunoassay. Finally, the use of two different assays allowed us to define seroprevalence ranges alternatively favouring specificity (requiring a positive result for both tests) or sensitivity (positive to either test).

The relatively low seroprevalence observed in the context of an intense epidemic in Spain might serve as a reference to other countries. At present, herd immunity is difficult to

achieve without accepting the collateral damage of many deaths in the susceptible population and overburdening of health systems. Our results, together with previous evidence, suggest that approximately a third of people with SARS-CoV-2 infection remain asymptomatic, which has important public health implications. Regional seroprevalence data offer valuable information to tailor public health policies against this epidemic."

[MMWR](#): Characteristics of Adult Outpatients and Inpatients with COVID-19 — 11 Academic Medical Centers, United States, March–May 2020 (03 July 2020)

"Exposures to SARS-CoV-2 have commonly been described in congregate settings rather than broader community settings.

In a multistate telephone survey of 350 adult inpatients and outpatients who tested positive for SARS-CoV-2 infection, only 46% reported recent contact with a COVID-19 patient. Most participants' contacts were a family member (45%) or a work colleague (34%). Two thirds of participants were employed; only 17% were able to telework.

Case investigation, contact tracing, and isolation of infected persons are needed to prevent ongoing community transmission, given the frequent lack of a known contact. Enhanced measures to ensure workplace safety, including social distancing and more widespread use of cloth face coverings, are warranted."

[MMWR](#): Exposures Before Issuance of Stay-at-Home Orders Among Persons with Laboratory-Confirmed COVID-19 — Colorado, March 2020 (03 July 2020)

"Among all participants, 99 (27%) reported known contact with at least one person with laboratory-confirmed COVID-19 (Figure); the most commonly reported relationships to potential source patients were a family member (27; 27%) and a coworker (25; 25%). Approximately three quarters of participants reported that their exposure to a known COVID-19 contact occurred in the workplace (47; 47%) or the household (24; 24%). Among the 47 participants who reported workplace exposure, most were health care personnel (28; 60%), followed by workers in public administration or the armed forces (six; 13%), and those working in a manufacturing setting (five; 11%).

Among the 265 (73%) participants without known contact with a laboratory-confirmed COVID-19 patient, 30% (79 of 265) reported contact with a person they knew who had fever or respiratory symptoms. The most commonly reported activities in the 2 weeks before becoming ill included attending gatherings of >10 persons (116; 44%), traveling domestically (76; 29%), working in a health care setting (75; 28%), visiting a health care setting not as a health care worker (61; 23%), and using public transportation (57; 22%).

These findings highlight the need for anyone with COVID-19-compatible symptoms to avoid public settings and isolate from other persons, even within their own household, when possible."

[JAMA Neurol](#): Risk of Ischemic Stroke in Patients With Coronavirus Disease 2019 (COVID-19) vs Patients With Influenza (02 July 2020)

"Question: How does the risk of acute ischemic stroke compare between patients with coronavirus disease 2019 (COVID-19) and patients with influenza, a respiratory virus previously associated with stroke?

Findings: In this cohort study, 1916 patients with emergency department visits or hospitalizations with COVID-19 had an elevated risk of ischemic stroke compared with 1486 patients with emergency department visits or hospitalizations with influenza.

Meaning: Patients with COVID-19 appear to have a heightened risk of acute ischemic stroke compared with patients with influenza."

[NEJM](#): Covid-19 in Immune-Mediated Inflammatory Diseases — Case Series from New York (02 July 2020)

"Here, we report a prospective case series involving patients with known immune-mediated inflammatory disease (rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis, psoriasis, inflammatory bowel disease, or related conditions) who were receiving anticytokine biologics, other immunomodulatory therapies, or both when confirmed or highly suspected symptomatic Covid-19 developed....

The percentage of patients who were receiving biologics or JAK inhibitors at baseline was higher among the ambulatory patients than among the hospitalized patients (55 of 72 patients [76%] and 7 of 14 patients [50%], respectively) (Table 1 and Table S2), and the overall incidence of hospitalization among patients who had received these medications on a long-term basis was 11% (7 of 62 patients). However, even after multivariate analysis, the use of oral glucocorticoids (in 4 of 14 hospitalized patients [29%] and in 4 of 72 ambulatory patients [6%]), hydroxychloroquine (in 3 of 14 patients [21%] and 5 of 72 patients [7%], respectively), and methotrexate (in 6 of 14 patients [43%] and 11 of 72 patients [15%], respectively) was higher among patients with immune-mediated inflammatory disease for whom hospitalization was warranted."

[Science](#): Primary exposure to SARS-CoV-2 protects against reinfection in rhesus macaques (02 July 2020)

"Coronavirus disease 2019 (COVID-19), which is caused by infection with the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has become a global pandemic. It currently remains unclear whether convalescing patients have a risk of reinfection. We generated a rhesus macaque model of SARS-CoV-2 infection that was characterized by interstitial pneumonia and systemic viral dissemination mainly in the respiratory and gastrointestinal tracts. Rhesus macaques reinfected with the identical SARS-CoV-2 strain during the early recovery phase of the initial SARS-CoV-2 infection did not show detectable viral dissemination, clinical manifestations of viral disease, or histopathological changes.

Comparing the humoral and cellular immunity between primary infection and rechallenge revealed notably enhanced neutralizing antibody and immune responses. Our results suggest that primary SARS-CoV-2 exposure protects against subsequent reinfection in rhesus macaques."

[JAMA Intern Med](#): Estimation of Excess Deaths Associated With the COVID-19 Pandemic in the United States, March to May 2020 (01 July 2020)

"Question: Did more all-cause deaths occur during the first months of the coronavirus disease 2019 (COVID-19) pandemic in the United States compared with the same months during previous years?

Findings: In this cohort study, the number of deaths due to any cause increased by approximately 122 000 from March 1 to May 30, 2020, which is 28% higher than the reported number of COVID-19 deaths.

Meaning: Official tallies of deaths due to COVID-19 underestimate the full increase in deaths associated with the pandemic in many states."

[JAMA Netw Open](#): Prevalence of and Risk Factors Associated With Mental Health Symptoms Among the General Population in China During the Coronavirus Disease 2019 Pandemic (01 July 2020)

"Question: What are the patterns of and factors associated with mental health conditions among the general population during the coronavirus disease 2019 (COVID-19) outbreak in China?

Findings: In this survey study with 56 679 participants across all 34 province-level regions in China, 27.9% of participants had symptoms of depression, 31.6% had symptoms of anxiety, 29.2% had symptoms of insomnia, and 24.4% had symptoms of acute stress during the outbreak. Factors independently associated with negative mental health outcomes included having confirmed or suspected COVID-19, having a relative with confirmed or suspected COVID-19, having occupational exposure risks, living in Hubei province, and experiencing quarantine and delays in returning to work.

Meaning: The mental health burden associated with COVID-19 is considerable among the general population of China, suggesting that mental health interventions are in urgent demand during the COVID-19 pandemic, especially for some at-risk populations."

[JAMA Neurol](#): Neurologic and Radiographic Findings Associated With COVID-19 Infection in Children (01 July 2020)

"Question: What are the neurological manifestations of coronavirus disease 2019 (COVID-19) in children?

Findings: In a case series of 4 children with COVID-19 and neurological symptoms, all 4 patients had signal changes in the splenium of the corpus callosum on neuroimaging and required intensive care admission for the treatment of COVID-19 pediatric multisystem inflammatory syndrome.

Meaning: Children with COVID-19 may present with new neurological symptoms involving both the central and peripheral nervous system and splenial changes on imaging, in the absence of respiratory symptoms; this diagnosis should be considered within the differential diagnosis of splenial lesions."

[BMJ](#): Respiratory failure and non-invasive respiratory support during the covid-19 pandemic: an update for re-deployed hospital doctors and primary care physicians (30 June 2020)

"What you need to know:

- Most patients who become seriously unwell with covid-19 do so primarily due to acute type 1 respiratory failure and benefit from early recognition of respiratory deterioration and appropriate escalation in respiratory support
- Respiratory deterioration can be identified by an increasing respiratory rate, an inability to talk in full sentences, the use of accessory muscles of breathing, decreasing oxygen levels in the blood, and an increased requirement for supplementary oxygen
- All patients with covid-19 admitted to hospital and many of those in the community should have a ceiling of care established at the earliest opportunity"

[Clin Infect Dis](#): Impact of SARS-CoV-2 Viral Load on Risk of Intubation and Mortality Among Hospitalized Patients with Coronavirus Disease 2019 (30 June 2020)

"We evaluated 678 patients with COVID-19. Higher viral load was associated with increased age, comorbidities, smoking status, and recent chemotherapy. In-hospital mortality was 35.0% with a high viral load (Ct<25; n=220), 17.6% with a medium viral load (Ct 25-30; n=216), and 6.2% with a low viral load (Ct>30; n=242; P<0.001). The risk of intubation was also higher in patients with a high viral load (29.1%), compared to those with a medium (20.8%) or low viral load (14.9%; P<0.001). High viral load was independently associated with mortality (adjusted odds ratio [aOR] 6.05; 95% confidence interval [CI]: 2.92-12.52; P<0.001) and intubation (aOR 2.73; 95% CI: 1.68-4.44; P<0.001) in multivariate models.

Admission SARS-CoV-2 viral load among hospitalized patients with COVID-19 independently correlates with the risk of intubation and in-hospital mortality. Providing this information to clinicians could potentially be used to guide patient care."

Preprints—not yet peer-reviewed papers

[arXiv](#), [bioRxiv](#), and [medRxiv](#) are preprint servers: "[T]hese are preliminary reports that have not been peer-reviewed. They should not be relied on to guide clinical practice or health-related behavior and should not be reported in news media as established information."

[medRxiv](#): Chronic treatment with hydroxychloroquine and SARS-CoV-2 infection (29 June 2020)

"Hydroxychloroquine sulphate (HCQ) is being scrutinized for repositioning in the treatment and prevention of SARS-Cov-2 infection. This antimalarial drug is also chronically used to treat patients with autoimmune diseases.

By analyzing the Portuguese anonymized data on private and public based medical prescriptions we have identified all cases chronically receiving HCQ for the management of diseases such as systemic lupus erythematosus, rheumatoid arthritis, and other autoimmune diseases. Additionally, we have detected all laboratory confirmed cases of SARS-CoV-2 infection and all laboratory confirmed negative cases in the Portuguese population (mandatorily registered in a centrally managed database). Cross linking the two sets of data has allowed us to compare the proportion of HCQ chronic treatment (at least 2 grams per month) in laboratory confirmed cases of SARS-CoV-2 infection with laboratory confirmed negative cases.

Out of 26,815 SARS-CoV-2 positive patients, 77 (0.29%) were chronically treated with HCQ, while 1,215 (0.36%) out of 333,489 negative patients were receiving it chronically ($P=0.04$). After adjustment for age, sex, and chronic treatment with corticosteroids and/or immunosuppressants, the odds ratio of SARS-CoV-2 infection for chronic treatment with HCQ has been 0.51 (0.37-0.70).

Our data suggest that chronic treatment with HCQ confer protection against SARS-CoV-2 infection."

[arXiv](#): Probability of symptoms and critical disease after SARS-CoV-2 infection (posted 15 June, revised 22 June 2020)

"We quantified the probability of developing symptoms (respiratory or fever ≥ 37.5 °C) and critical disease (requiring intensive care or resulting in death) of SARS-CoV-2 positive subjects. 5,484 contacts of SARS-CoV-2 index cases detected in Lombardy, Italy were analyzed, and positive subjects were ascertained via nasal swabs and serological assays. 73.9% of all infected individuals aged less than 60 years did not develop symptoms (95% confidence interval: 71.8-75.9%). The risk of symptoms increased with age. 6.6% of infected subjects older than 60 years had critical disease, with males at significantly higher risk."

ICYMI: Older Articles of Potential Interest

[Antiviral Res](#): A library of nucleotide analogues terminate RNA synthesis catalyzed by polymerases of coronaviruses that cause SARS and COVID-19 (18 June 2020)

"SARS-CoV-2, a member of the coronavirus family, is responsible for the current COVID-19 worldwide pandemic. We previously demonstrated that five nucleotide analogues inhibit the SARS-CoV-2 RNA-dependent RNA polymerase (RdRp), including the active triphosphate forms of Sofosbuvir, Alovudine, Zidovudine, Tenofovir alafenamide and Emtricitabine. We report here the evaluation of a library of nucleoside triphosphate analogues with a variety of structural and chemical features as inhibitors of the RdRps of SARS-CoV and SARS-CoV-2. These features include modifications on the sugar (2' or 3' modifications, carbocyclic, acyclic, or dideoxynucleotides) or on the base. The goal is to identify nucleotide analogues that not only terminate RNA synthesis catalyzed by these coronavirus RdRps, but also have the potential to resist the viruses' exonuclease activity. We examined these nucleotide analogues for their ability to be incorporated by the RdRps in the polymerase reaction and to prevent further incorporation. While all 11 molecules tested displayed incorporation, 6 exhibited immediate termination of the polymerase reaction (triphosphates of Carbovir, Ganciclovir, Stavudine and Entecavir; 3'-OMe-UTP and Biotin-16-dUTP), 2 showed delayed termination (Cidofovir diphosphate and 2'-OMe-UTP), and 3 did not terminate the polymerase reaction (2'-F-dUTP, 2'-NH₂-dUTP and Desthiobiotin-16-UTP). The coronaviruses possess an exonuclease that apparently requires a 2'-OH at the 3'-terminus of the growing RNA strand for proofreading. In this study, all nucleoside triphosphate analogues evaluated form Watson-Crick-like base pairs. The nucleotide analogues demonstrating termination either lack a 2'-OH, have a blocked 2'-OH, or show delayed termination. Thus, these nucleotide analogues are of interest for further investigation to evaluate whether they can evade the viral exonuclease activity. Prodrugs of five of these nucleotide analogues (Cidofovir, Abacavir, Valganciclovir/Ganciclovir, Stavudine and Entecavir) are FDA-approved medications for treatment of other viral infections, and their safety profiles are well established. After demonstrating potency in inhibiting viral replication in cell culture, candidate molecules can be rapidly evaluated as potential therapies for COVID-19."

Other Highlights: Racism in Medicine

[BMJ](#): Special Issue – Racism in Medicine

[Health Affairs](#): On Racism: A New Standard For Publishing On Racial Health Inequities (02 July 2020)

News in Brief

A letter in *Clinical Infectious Diseases* signed by 239 scientists urges the WHO, CDC, and other authorities to address the possibility of airborne spread of the coronavirus ([WashPo](#); see [Clin Infect Dis](#) for full text).

As COVID-19 cases surge, colleagues fall ill, and supplies run short, healthcare workers in Texas look to their New York counterparts on how to handle things and lessons learned ([NYT](#)).

Treatment and Recovery

Britain's health ministry is investing \$8.4 (~\$10.5 million USD) in a new study to look at the long-term effects of COVID-19 ([Reuters](#)).

Quercetin, a plant flavonoid found in capers and green tea, is being looked at as a potential adjuvant therapy for COVID-19 ([Medpage](#)).

Disparities

A new analysis of national and local racial and ethnic disparities, based on federal data, shows Black and Latinx people are 3 times as likely to be infected by SARS-CoV-2 and 2 times as likely to die from COVID-19 compared to White people ([NYT](#)).

Mitigation Measures and Reopening

Even during a pandemic, the public health system faces funding cuts and other challenges ([KHN](#)).

Experts and growing evidence suggest that smell checks might be better than temperature checks for coronavirus screening ([STAT](#)).

Making a better mask is harder than it seems ([NPR](#)).

"As states ease restrictions on businesses, individuals face a psychological morass" ([Atlantic](#)).

Research

COVID-19 research is messy; lack of coordination and organization makes for wasted efforts and energy ([STAT](#)).

Researchers are tackling five pressing questions about COVID-19, including immunity to the role of genetics ([Nature](#)).

"A guide to R — the pandemic's misunderstood metric" ([Nature](#)).

Vaccines

Preliminary data on the COVID-19 vaccine from Pfizer and BioNTech suggest an immune response along with fever and other side effects ([STAT](#)).

Meanwhile, the clinical trials for Moderna's vaccine has been delayed due to protocol changes, but may still be on track to start in July ([STAT](#)).

Considering only half of Americans surveyed said they would get a vaccine if available, any mass vaccination effort will be challenging — and the messaging used will matter ([Science](#)).

Other Infectious Diseases

Saudi Arabia reported 9 new cases (including 5 deaths) of MERS in April and May ([WHO](#)).

The Florida Department of Health has confirmed a case of *Naegleria fowleri* – the so-called brain-eating amoeba – in the Tampa area ([CBS](#)).

Australia, a country known for dangerous and often venomous animals, has a flesh-eating bacteria (*Mycobacterium ulcerans*) problem ([Atlantic](#)).

Authorities in a region of Inner Mongolia have confirmed one case of bubonic plague and are investigating a second suspected case ([BBC](#)).

References

Statistics

JHU CSSE: Johns Hopkins Center for Systems Science and Engineering. Coronavirus COVID-19 Global Cases. Link: <https://coronavirus.jhu.edu/map.html>

VA DOH: Virginia Department of Health. COVID-19 in Virginia. Link: <http://www.vdh.virginia.gov/coronavirus/>

Selected Primary Literature

Antiviral Res: Jockusch S, Tao C, Li X, Anderson TK, Chien M, Kumar S, Russo JJ, Kirchdoerfer RN, Ju J. A library of nucleotide analogues terminate RNA synthesis catalyzed by polymerases of coronaviruses that cause SARS and COVID-19. Antiviral Res. 2020 Jun 18;180:104857. doi: 10.1016/j.antiviral.2020.104857. Epub ahead of print. PMID: 32562705; PMCID: PMC7299870. Link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7299870/>

arXiv: Poletti P, Tirani M, Cereda D, et al. Probability of symptoms and critical disease after SARS-CoV-2 infection (posted 15 June, revised 22 June 2020). arXiv. arXiv:2006.08471v2 [q-bio.PE] Link: <https://arxiv.org/abs/2006.08471>

BMJ: Nicholson TW, Talbot NP, Nickol A, Chadwick AJ, Lawton O. Respiratory failure and non-invasive respiratory support during the covid-19 pandemic: an update for re-deployed hospital

doctors and primary care physicians. BMJ. 2020 Jun 30;369:m2446. doi: 10.1136/bmj.m2446. PMID: 32605992. Link: <https://www.bmj.com/content/369/bmj.m2446>

Clin Infect Dis: Magleby R, Westblade LF, Trzebucki A, Simon MS, Rajan M, Park J, Goyal P, Safford MM, Satlin MJ. Impact of SARS-CoV-2 Viral Load on Risk of Intubation and Mortality Among Hospitalized Patients with Coronavirus Disease 2019. Clin Infect Dis. 2020 Jun 30:ciaa851. doi: 10.1093/cid/ciaa851. Epub ahead of print. PMID: 32603425. Link: <https://academic.oup.com/cid/article/doi/10.1093/cid/ciaa851/5865363>

JAMA Health Forum: Frampton S, Agrawal S, Guastell S. Guidelines for Family Presence Policies During the COVID-19 Pandemic (06 July 2020) Link: <https://jamanetwork.com/channels/health-forum/fullarticle/2768108>

JAMA Intern Med: Weinberger DM, Chen J, Cohen T, Crawford FW, Mostashari F, Olson D, Pitzer VE, Reich NG, Russi M, Simonsen L, Watkins A, Viboud C. Estimation of Excess Deaths Associated With the COVID-19 Pandemic in the United States, March to May 2020. JAMA Intern Med. 2020 Jul 1. doi: 10.1001/jamainternmed.2020.3391. Epub ahead of print. PMID: 32609310. Link: <https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2767980>

JAMA Netw Open: Shi L, Lu ZA, Que JY, Huang XL, Liu L, Ran MS, Gong YM, Yuan K, Yan W, Sun YK, Shi J, Bao YP, Lu L. Prevalence of and Risk Factors Associated With Mental Health Symptoms Among the General Population in China During the Coronavirus Disease 2019 Pandemic. JAMA Netw Open. 2020 Jul 1;3(7):e2014053. doi: 10.1001/jamanetworkopen.2020.14053. PMID: 32609353. Link: <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2767771>

JAMA Neurol: Abdel-Mannan O, Eyre M, Löbel U, Bamford A, Eltze C, Hameed B, Hemingway C, Hachohen Y. Neurologic and Radiographic Findings Associated With COVID-19 Infection in Children. JAMA Neurol. 2020 Jul 1. doi: 10.1001/jamaneurol.2020.2687. Epub ahead of print. PMID: 32609336. Link: <https://jamanetwork.com/journals/jamaneurology/fullarticle/2767979>

JAMA Neurol: Merkler AE, Parikh NS, Mir S, Gupta A, Kamel H, Lin E, Lantos J, Schenck EJ, Goyal P, Bruce SS, Kahan J, Lansdale KN, LeMoss NM, Murthy SB, Stieg PE, Fink ME, Iadecola C, Segal AZ, Cusick M, Campion TR Jr, Diaz I, Zhang C, Navi BB. Risk of Ischemic Stroke in Patients With Coronavirus Disease 2019 (COVID-19) vs Patients With Influenza. JAMA Neurol. 2020 Jul 2. doi: 10.1001/jamaneurol.2020.2730. Epub ahead of print. PMID: 32614385. Link: <https://jamanetwork.com/journals/jamaneurology/fullarticle/2768098>

Lancet: Pollan M, Perez-Gomez B, Pator-Barriuso R, et al. Prevalence of SARS-CoV-2 in Spain (ENE-COVID): a nationwide, population-based seroepidemiological study. The Lancet. Published: July 06, 2020 DOI: [https://doi.org/10.1016/S0140-6736\(20\)31483-5](https://doi.org/10.1016/S0140-6736(20)31483-5) Link: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)31483-5/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31483-5/fulltext)

medRxiv: Ferreira A, Oliveira-e-Silva O, Bettencourt P. Chronic treatment with hydroxychloroquine and SARS-CoV-2 infection (29 June 2020). medRxiv 2020.06.26.20056507;

doi: <https://doi.org/10.1101/2020.06.26.20056507> Link:

<https://www.medrxiv.org/content/10.1101/2020.06.26.20056507v1>

MMWR: Marshall K, Vahey GM, McDonald E, Tate JE, Herlihy R, Midgley CM, Kawasaki B, Killerby ME, Alden NB, Staples JE; Colorado Investigation Team. Exposures Before Issuance of Stay-at-Home Orders Among Persons with Laboratory-Confirmed COVID-19 - Colorado, March 2020. MMWR Morb Mortal Wkly Rep. 2020 Jul 3;69(26):847-849. doi:

10.15585/mmwr.mm6926e4. PMID: 32614809. Link:

<https://www.cdc.gov/mmwr/volumes/69/wr/mm6926e4.htm>

MMWR: Tenforde MW, Billig Rose E, Lindsell CJ, Shapiro NI, Files DC, Gibbs KW, Prekker ME, Steingrub JS, Smithline HA, Gong MN, Aboodi MS, Exline MC, Henning DJ, Wilson JG, Khan A, Qadir N, Stubblefield WB, Patel MM, Self WH, Feldstein LR; CDC COVID-19 Response Team. Characteristics of Adult Outpatients and Inpatients with COVID-19 - 11 Academic Medical Centers, United States, March-May 2020. MMWR Morb Mortal Wkly Rep. 2020 Jul 3;69(26):841-846. doi: 10.15585/mmwr.mm6926e3. PMID: 32614810. Link:

<https://www.cdc.gov/mmwr/volumes/69/wr/mm6926e3.htm>

NEJM: Haberman R, Axelrad J, Chen A, Castillo R, Yan D, Izmirly P, Neimann A, Adhikari S, Hudesman D, Scher JU. Covid-19 in Immune-Mediated Inflammatory Diseases - Case Series from New York. N Engl J Med. 2020 Jul 2;383(1):85-88. doi: 10.1056/NEJMc2009567. Epub 2020 Apr 29. PMID: 32348641; PMCID: PMC7204427. Link:

<https://www.nejm.org/doi/full/10.1056/NEJMc2009567>

Science: Deng W, Bao L, Liu J, Xiao C, Liu J, Xue J, Lv Q, Qi F, Gao H, Yu P, Xu Y, Qu Y, Li F, Xiang Z, Yu H, Gong S, Liu M, Wang G, Wang S, Song Z, Liu Y, Zhao W, Han Y, Zhao L, Liu X, Wei Q, Qin C. Primary exposure to SARS-CoV-2 protects against reinfection in rhesus macaques. Science. 2020 Jul 2:eabc5343. doi: 10.1126/science.abc5343. Epub ahead of print. PMID: 32616673. Link:

<https://science.sciencemag.org/content/early/2020/07/01/science.abc5343>

News in Brief

Atlantic: The Atlantic. Brendan Borrell. Australia Has a Flesh-Eating-Bacteria Problem (03 July 2020). Link: <https://www.theatlantic.com/health/archive/2020/07/flesh-eating-bacteria-are-spreading/613762>

Atlantic: The Atlantic. Tess Wilkinson-Ryan. As states ease restrictions on businesses, individuals face a psychological morass (06 July 2020). Link:

<https://www.theatlantic.com/ideas/archive/2020/07/reopening-psychological-morass/613858/>

BBC: BBC News. China bubonic plague: Inner Mongolia takes precautions after case (06 July 2020). Link: <https://www.bbc.com/news/world-asia-china-53303457>

CBS: CBS News. Rare case of brain-destroying amoeba confirmed in Florida (06 July 2020). Link: <https://www.cbsnews.com/news/brain-eating-amoeba-naegleria-fowleri-confirmed-florida/>

Clin Infect Dis: Morawska L, Milton DK. It is Time to Address Airborne Transmission of COVID-19. Clin Infect Dis. Published 06 July 2020 DOI: <https://doi.org/10.1093/cid/ciaa939> Link: <https://academic.oup.com/cid/article/doi/10.1093/cid/ciaa939/5867798>

KHN: Kaiser Health News. Lauren Weber and Laura Ungar and Michelle R. Smith, The Associated Press and Hannah Recht and Anna Maria Barry-Jester. Hollowed-Out Public Health System Faces More Cuts Amid Virus (01 July 2020). Link: <https://khn.org/news/us-public-health-system-underfunded-under-threat-faces-more-cuts-amid-covid-pandemic/>

Medpage: Medpage Today. Elizabeth Hlavinka. Quercetin: New Hype for COVID-19? (01 July 2020). Link: <https://www.medpagetoday.com/infectiousdisease/covid19/87373>

Nature: Nature. David Adam. A guide to R — the pandemic's misunderstood metric (03 July 2020). Link: <https://www.nature.com/articles/d41586-020-02009-w>

Nature: Nature. Ewen Callaway, Heidi Ledford, and Smriti Mallapaty. Six months of coronavirus: the mysteries scientists are still racing to solve (03 July 2020). Link: <https://www.nature.com/articles/d41586-020-01989-z>

NPR: National Public Radio. Elizabeth Blair and Nina Gregory. Want To Create A Better Mask? It's Harder Than It Seems (06 July 2020). Link: <https://www.npr.org/2020/07/06/881504418/want-to-create-a-better-mask-its-harder-than-it-seems>

NYT: New York Times. Sheri Fink. As Coronavirus Slams Houston Hospitals, It's Like New York 'All Over Again' (published 04 July 2020; updated 05 July 2020). Link: <https://www.nytimes.com/2020/07/04/us/coronavirus-houston-new-york.html>

NYT: New York Times. Richard A. Oppel Jr., Robert Gebeloff, K.K. Rebecca Lai, Will Wright and Mitch Smith. The Fullest Look Yet at the Racial Inequity of Coronavirus (05 July 2020). Link: <https://www.nytimes.com/interactive/2020/07/05/us/coronavirus-latinos-african-americans-cdc-data.html>

Reuters: Reuters World News. Britain puts \$10 million into study on long term effects of COVID-19 (05 July 2020). Link: <https://www.reuters.com/article/us-health-coronavirus-britain-longterm/britain-puts-10-million-into-study-on-long-term-effects-of-covid-19-idUSKBN2460AK>

Science: Science. Warren Cornwall. Just 50% of Americans plan to get a COVID-19 vaccine. Here's how to win over the rest (30 June 2020). Link: <https://www.sciencemag.org/news/2020/06/just-50-americans-plan-get-covid-19-vaccine-here-s-how-win-over-rest>

STAT: STATnews. Sharon Begley. Fever checks are a flawed way to flag Covid-19 cases. Experts say smell tests might help (02 July 2020). Link: <https://www.statnews.com/2020/07/02/smell-tests-temperature-checks-covid19/>

STAT: STATnews. Damian Garde. Trial of Moderna Covid-19 vaccine delayed, investigators say, but July start still possible (02 July 2020). Link: <https://www.statnews.com/2020/07/02/trial-of-moderna-covid-19-vaccine-delayed-investigators-say-but-july-start-still-possible/>

STAT: STATnews. Matthew Herper. Covid-19 vaccine from Pfizer and BioNTech shows positive results (01 July 2020). <https://www.statnews.com/2020/07/01/covid-19-vaccine-from-pfizer-and-biontech-shows-positive-results/>

STAT: STATnews. Matthew Herper and Erin Riglin. Data show panic and disorganization dominate the study of Covid-19 drugs (06 July 2020). Link: <https://www.statnews.com/2020/07/06/data-show-panic-and-disorganization-dominate-the-study-of-covid-19-drugs/>

WashPo: Washington Post. Scientists urge WHO to address airborne spread of coronavirus (05 July 2020). Link: https://www.washingtonpost.com/world/europe/coronavirus-airborne-spread-world-health-organization/2020/07/05/9de19c38-bed8-11ea-b4f6-cb39cd8940fb_story.html

WHO: World Health Organization. Middle East respiratory syndrome coronavirus (MERS-CoV) – Saudi Arabia (02 July 2020). Link: <https://www.who.int/csr/don/02-jul-2020-mers-saudi-arabia/en/>